

From: Rebecca Rooney
Subject: PhD Opportunity: Ecohydrologic function in mountain wetlands – biodiversity and water budgets in wetlands of the Upper Bow Basin.

Exciting opportunity for a Ph.D. student to join the Mountain West Futures project, funded under the Global Water Futures program.

The successful applicant will work in the laboratory of Rebecca Rooney (University of Waterloo) and will enroll in the Doctor of Philosophy (PhD) in Biology-Water graduate program under the Collaborative Water Program, supported by the Water Institute at the University of Waterloo.

Starting date: May 1, 2018
3 Year Stipend Guaranteed: \$25,000 CDN/yr.

Climate change and altered land use are increasing the risks of both flooding and drought in Canada. To protect downstream property and agricultural productivity we must consider the role of natural assets, like wetlands, as a flexible and low-cost alternative to built infrastructure like levees or bypasses. Natural wetlands have great potential to mitigate the downstream effects of extreme precipitation events through water retention, reduced flow velocity, and other normal hydrologic functions. Wetlands also provide additional value-added ecosystem services including acting as biodiversity hotspots and deep carbon stores, not to mention opportunities for recreation and tourism.

To understand the contribution of wetlands to ecosystem services there is no better laboratory than the upper Bow River. Concerns about flood risk skyrocketed after the 2013 flood in the upper Bow, that caused \$6 billion in damages. Yet drought risk may be of even greater concern - the Bow supplies water for 46% of the irrigated acres in Alberta as well as nearly 1.2 million residents of Calgary.

The student will have the opportunity to explore how logging activity in the Foothills Region threatens the coupled vegetation diversity and hydrologic function of these wetland systems. Characterizing the vascular plant and bryophyte communities and their relationship to water table stability across a gradient in logging exposure, the student will work closely with hydrologists, landscape ecologists, and remote sensing specialists in a collaborative environment.

To be eligible, applicants must have successfully defended and submitted their MSc thesis prior to the proposed start date. Applicants should have strong interests in ecohydrology and peatland ecology and a background in plants and mosses. They should be highly motivated, with the ability to work independently and collaboratively, and possess strong verbal and written communication skills.

Applications must include a cover letter, C.V., unofficial transcripts, and the contact information of three references. All documentation submitted must be assembled in a single PDF file and sent to: Dr. Rebecca Rooney, rrooney@uwaterloo.ca, with PhD-MWF-YourName in the subject line.